

Claims

1.

1 A child-resistant dispensing closure that includes:

2 a base having a deck with a dispensing opening and a peripheral skirt extending
3 from said deck,

4 a lid molded integrally with said base and coupled by a hinge to said base so as to
5 be pivotable about said hinge between a closed position overlying said deck and an open position
6 spaced from said deck,

7 one of said base and said lid having a latch arm resiliently extending from a
8 periphery thereof diametrically opposite said hinge, said latch arm having a pair of opposite
9 extending tabs adjacent to a free end thereof,

10 the other of said base and said lid having an axial passage for receiving said latch
11 arm and a pair of laterally spaced ledges in said passage for engagement by said tabs to lock said
12 lid in said closed position,

13 said latch arm being directly manually engageable by a user from a radial direction
14 external to said closure to pivot said latch arm radially inwardly within said passage and release
15 said tabs from said ledges so that said lid can be pivoted to said open position.

2.

1 The closure set forth in claim 1 wherein said latch arm resiliently extends from a
2 periphery of said lid diametrically opposite said hinge, and wherein said passage in said base is
3 radially open at said skirt.

3.

1 The closure set forth in claim 2 wherein said ledges in said passage radially open
2 at said skirt such that said latch arm may extend outside of said skirt as said lid is moved toward
3 said closed position and then snap radially inwardly beneath said ledges due to resilience of said
4 latch arm and connection between said latch arm and said lid.

4.

1 The closure set forth in claim 3 further comprising cam surfaces on said ledges
2 adjacent to said open passage in said skirt for engagement by said tabs on said latch arm to cam
3 said latch arm radially outwardly as said lid is moved toward said closed position.

5.

1 The closure set forth in claim 3 wherein said lid includes an internal rib on said
2 latch arm for strengthening resilient coupling of said latch arm to said lid.

6.

1 The closure set forth in claim 1 wherein said latch arm resiliently extends from said
2 base at a position diametrically opposite said hinge.

7.

1 The closure set forth in claim 6 wherein said latch arm is resiliently coupled to said
2 skirt at a position spaced from said deck, said base having an open pocket in said skirt behind said
3 latch arm to accommodate pivotal movement of said latch arm to release said lid.

8.

1 The closure set forth in claim 7 wherein said ledges on said lid, or said tabs on said
2 latch arm, or both, have cam surfaces to cam said latch arm radially inwardly into said pocket as
3 said lid is moved toward said closed position.

9.

1 The closure set forth in claim 1 further comprising cam surfaces on said ledges,
2 said tabs on said latch arm, or both, for flexing said resilient latch arm to snap said tabs over said
3 ledges as said lid is moved toward said closed position.

10.

1 A child-resistant dispensing closure that includes:
2 a base having a deck with a dispensing opening and a peripheral skirt extending
3 from said deck,
4 a lid molded integrally with said base and coupled by a hinge to a periphery of said
5 base so as to be pivotable about said hinge between a closed position overlying said deck and an
6 open position spaced from said deck,
7 a latch arm resiliently coupled to a periphery of said lid diametrically opposite said
8 hinge, said latch arm being T-shaped having a center leg coupled to said lid and a pair of tabs
9 extending laterally oppositely from a free end of said leg, and
10 an axial passage on said base for receiving said latch arm, said passage being
11 radially open at said skirt and having a pair of laterally spaced ledges for engagement by said tabs
12 to lock said lid in said closed position,

13 said latch arm being directly manually engageable by a user from a radial direction
14 external to said base to flex said latch arm radially inwardly into said passage and release said tabs
15 from engagement with said ledges so that said lid can be pivoted to said open position.

11.

1 The closure set forth in claim 10 wherein said ledges in said passage radially open
2 at said skirt such that said latch arm may extend outside of said skirt as said lid is moved toward
3 said closed position and then snap radially inwardly beneath said ledges due to resilience of said
4 latch arm and connection between said latch arm and said lid.

12.

1 The closure set forth in claim 11 further comprising cam surfaces on said skirt
2 adjacent to said open passage in said skirt for engagement by said tabs on said latch arm to cam
3 said latch arm radially outwardly as said lid is moved toward said closed position.

13.

1 The closure set forth in claim 12 wherein said lid includes an internal rib on said
2 latch arm for strengthening resilient coupling of said latch arm to said lid.

14.

1 A child-resistant dispensing closure that includes:

2 a base having a deck with a dispensing opening and a peripheral skirt extending
3 from said deck,

4 a lid molded integrally with said base and coupled to said base by a hinge so as to
5 be pivotable about said hinge between a closed position overlying said deck and an open position
6 spaced from said deck,

7 a latch arm resiliently coupled to said skirt at a position spaced from said deck,
8 said latch arm being T-shaped having a center leg coupled to said skirt and a pair of tabs
9 extending laterally oppositely from a free end of said leg, and

10 an axial passage in said lid for receiving said latch arm, said passage having a pair
11 of laterally spaced ledges for engagement by said tabs to lock said lid in said closed position,

12 said latch arm being directly manually engageable by a user from a radial direction
13 external to said base to flex said latch arm radially inwardly into said pocket and release said tabs
14 from engagement with said ledges so that said lid can be pivoted to said open position,

15 said base having an open pocket behind said skirt to accommodate pivotal flexing
16 of said latch arm.

15.

1 The closure set forth in claim 14 wherein said ledges on said lid, or said tabs on
2 said latch arm, or both, have cam surfaces to cam said latch arm radially inwardly into said pocket
3 as said lid is moved toward said closed position.

16.

1 A child-resistant closure and container package that includes:

2 a container and a closure secured to said container, said closure comprising:

3 a base having a deck with a dispensing opening and a peripheral skirt extending
4 from said deck,

5 a lid molded integrally with said base and coupled by a hinge to a periphery of said
6 base so as to be pivotable about said hinge between a closed position overlying said deck and an
7 open position spaced from said deck,

8 one of said base and said lid having a latch arm resiliently extending from a
9 periphery thereof diametrically opposite said hinge, said latch arm having a pair of opposite
10 extending tabs adjacent to a free end thereof,

11 the other of said base and said lid having an axial passage for receiving said latch
12 arm and a pair of laterally spaced ledges in said passage for engagement by said tabs to lock said
13 lid in said closed position,

14 said latch arm being directly manually engageable by a user from a radial direction
15 external to said closure to pivot said latch arm radially inwardly within said passage and release
16 said tabs from said ledges so that said lid can be pivoted to said open position.

17.

1 The package set forth in claim 16 wherein said latch arm resiliently extends from
2 a periphery of said lid diametrically opposite said hinge, and wherein said passage in said base is
3 radially open at said skirt.

18.

1 The package set forth in claim 17 wherein said ledges in said passage radially open
2 at said skirt such that said latch arm may extend outside of said skirt as said lid is moved toward
3 said closed position and then snap radially inwardly beneath said ledges due to resilience of said
4 latch arm and connection between said latch arm and said lid.

19.

1 The package set forth in claim 18 further comprising cam surfaces on said ledges
2 adjacent to said open passage in said skirt for engagement by said tabs on said latch arm to cam
3 said latch arm radially outwardly as said lid is moved toward said closed position.

20.

1 The package set forth in claim 18 wherein said lid includes an internal rib on said
2 latch arm for strengthening resilient coupling of said latch arm to said lid.

21.

1 The package set forth in claim 16 wherein said latch arm resiliently extends from
2 said base at a position diametrically opposite said hinge.

22.

1 The package set forth in claim 21 wherein said latch arm is resiliently coupled to
2 said skirt at a position spaced from said deck, said base having an open pocket in said skirt behind
3 said latch arm to accommodate pivotal movement of said latch arm to release said lid.

23.

1 The package set forth in claim 22 wherein said ledges on said lid, or said tabs on
2 said latch arm, or both, have cam surfaces to cam said latch arm radially inwardly into said pocket
3 as said lid is moved toward said closed position.

24.

1 The package set forth in claim 17 further comprising cam surfaces on said ledges,
2 said tabs on said latch arm, or both, for flexing said resilient latch arm to snap said tabs over said
3 ledges as said lid is moved toward said closed position.

25.

1 A child-resistant closure and container package that includes:
2 a container and a closure secured to said container,
3 said closure comprising:
4 a base having a deck with a dispensing opening and a peripheral skirt extending
5 from said deck,
6 a lid molded integrally with said base and coupled by a hinge to a periphery of said
7 base so as to be pivotable about said hinge between a closed position overlying said deck and an
8 open position spaced from said deck,
9 a latch arm resiliently coupled to a periphery of said lid diametrically opposite said
10 hinge, said latch arm being T-shaped having a center leg coupled to said lid and a pair of tabs
11 extending laterally oppositely from a free end of said leg, and

12 an axial passage on said base for receiving said latch arm, said passage being
13 radially open at said skirt and having a pair of laterally spaced ledges for engagement by said tabs
14 to lock said lid in said closed position,

15 said latch arm being directly manually engageable by a user from a radial direction
16 external to said base to flex said latch arm radially inwardly into said passage and release said tabs
17 from engagement with said ledges so that said lid can be pivoted to said open position.

26.

1 The package set forth in claim 25 wherein said ledges in said passage radially open
2 at said skirt such that said latch arm may extend outside of said skirt as said lid is moved toward
3 said closed position and then snap radially inwardly beneath said ledges due to resilience of said
4 latch arm and connection between said latch arm and said lid.

27.

1 The package set forth in claim 26 further comprising cam surfaces on said skirt
2 adjacent to said open passage in said skirt for engagement by said tabs on said latch arm to cam
3 said latch arm radially outwardly as said lid is moved toward said closed position.

28.

1 The package set forth in claim 27 wherein said lid includes an internal rib on said
2 latch arm for strengthening resilient coupling of said latch arm to said lid.

29.

1 A child-resistant closure and container package that includes:
2 a container and a closure secured to said container,
3 said closure including:
4 a base having a deck with a dispensing opening and a peripheral skirt extending
5 from said deck,
6 a lid molded integrally with said base and coupled to said base by a hinge so as to
7 be pivotable about said hinge between a closed position overlying said deck and an open position
8 spaced from said deck,
9 a latch arm resiliently coupled to said skirt at a position spaced from said deck,
10 said latch arm being T-shaped having a center leg coupled to said skirt and a pair of tabs
11 extending laterally oppositely from a free end of said leg, and
12 an axial passage in said lid for receiving said latch arm, said passage having a pair
13 of laterally spaced ledges for engagement by said tabs to lock said lid in said closed position,
14 said latch arm being directly manually engageable by a user from a radial direction
15 external to said base to flex said latch arm radially inwardly into said pocket and release said tabs
16 from engagement with said ledges so that said lid can be pivoted to said open position,
17 said base having an open pocket behind said skirt to accommodate pivotal flexing
18 of said latch arm.

30.

1 The package set forth in claim 29 wherein said ledges on said lid, or said tabs on
2 said latch arm, or both, have cam surfaces to cam said latch arm radially inwardly into said pocket
3 as said lid is moved toward said closed position.

31.

1 A method of making a child-resistant dispensing closure that includes integrally
2 molding a closure having:

3 a base having a deck with a dispensing opening and a peripheral skirt extending
4 from said deck,

5 a lid molded integrally with said base and coupled by a hinge to a periphery of said
6 base so as to be pivotable about said hinge between a closed position overlying said deck and an
7 open position spaced from said deck,

8 one of said base and said lid having a latch arm resiliently extending from a
9 periphery thereof diametrically opposite said hinge, said latch arm having a pair of opposite
10 extending tabs adjacent to a free end thereof,

11 the other of said base and said lid having an axial passage for receiving said latch
12 arm and a pair of laterally spaced ledges in said passage for engagement by said tabs to lock said
13 lid in said closed position,

14 said latch arm being directly manually engageable by a user from a radial direction
15 external to said closure to pivot said latch arm radially inwardly within said passage and release
16 said tabs from said ledges so that said lid can be pivoted to said open position.

32.

1 The method set forth in claim 31 wherein said latch arm resiliently extends from
2 a periphery of said lid diametrically opposite said hinge, and wherein said passage in said base is
3 radially open at said skirt.

33.

1 The method set forth in claim 32 wherein said ledges in said passage radially open
2 at said skirt such that said latch arm may extend outside of said skirt as said lid is moved toward
3 said closed position and then snap radially inwardly beneath said ledges due to resilience of said
4 latch arm and connection between said latch arm and said lid.

34.

1 The method set forth in claim 33 further comprising cam surfaces on said ledges
2 adjacent to said open passage in said skirt for engagement by said tabs on said latch arm to cam
3 said latch arm radially outwardly as said lid is moved toward said closed position.

35.

1 The method set forth in claim 33 wherein said lid includes an internal rib on said
2 latch arm for strengthening resilient coupling of said latch arm to said lid.

36.

1 The method set forth in claim 31 wherein said latch arm resiliently extends from
2 said base at a position diametrically opposite said hinge.

37.

1 The method set forth in claim 36 wherein said latch arm is resiliently coupled to
2 said skirt at a position spaced from said deck, said base having an open pocket in said skirt behind
3 said latch arm to accommodate pivotal movement of said latch arm to release said lid.

38.

1 The method set forth in claim 37 wherein said ledges on said lid, or said tabs on
2 said latch arm, or both, have cam surfaces to cam said latch arm radially inwardly into said pocket
3 as said lid is moved toward said closed position.

39.

1 The method set forth in claim 31 further comprising cam surfaces on said ledges,
2 said tabs on said latch arm, or both, for flexing said resilient latch arm to snap said tabs over said
3 ledges as said lid is moved toward said closed position.